

HEAT STRESS Acclimatization

Things you need to know:

- Heat acclimatization is the improvement in heat tolerance that comes from gradually increasing the intensity or duration of work performed in a hot setting.
- The best way to acclimatize yourself to the heat is to increase the workload performed in a hot setting gradually over a period of 1–2 weeks.
- You begin to lose your acclimatization after about 1 week away from working in the heat.

New employees are at the highest risk for heat illness. Acclimatization is crucial to working in hot conditions.

What are the benefits of heat acclimatization?

- Heat exposure causes less strain to the heart and other vital organs.
- Sweating improves (higher volume, earlier onset), which cools the body more quickly. Acclimatized workers need more water—not less—due to increased sweating.
- Workers increase their ability to comfortably perform physical tasks in the heat.

Tips for acclimatization

- Best results will come from gradually increasing work time in hot conditions over a period of 7 to 14 days, and cooling off and fully rehydrating between shifts.
- **Pushing to the point of heat exhaustion will hurt, not help, your heat tolerance.**
- Typically, acclimatization requires at least two hours of heat exposure per day (which can be broken into two, 1-hour periods).
- The body will acclimatize to the level of work demanded of it. Simply being in a hot place is not sufficient. Doing light or brief physical work in the heat will acclimatize you **ONLY** to light, brief work. More strenuous or longer tasks require more acclimatization.
- Stay hydrated! Dehydration reduces the benefits of heat acclimatization.
- Eating regular meals aids acclimatization. Food replaces electrolytes lost in sweat, especially during the first few days of acclimatization, when you lose the most salt in sweat.
- Physical fitness aids acclimatization.

How quickly does the body LOSE heat tolerance after acclimatization?

- Acclimatization will be maintained for a few days after heat exposure stops, but will begin to be lost after about 1 week away from working in the heat.
- After 1 month away from work in the heat, most people's heat tolerance will have returned to baseline.
- Working for 1–2 days in cooler conditions or taking breaks in air conditioning will not hurt acclimatization.

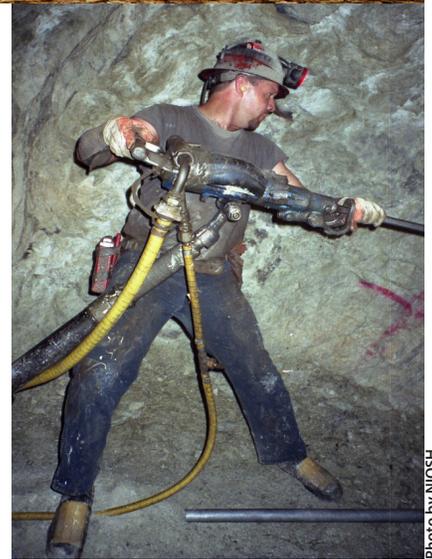


Photo by NIOSH

HEAT STRESS **Acclimatization**

Sample Acclimatization Schedule

NIOSH Acclimatization Recommendations for *New Workers*

1st day	20% usual work duration
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2nd day	40% usual work duration
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3rd day	60% usual work duration
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4th day	80% usual work duration
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5th day	100% usual work duration
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NIOSH Acclimatization Recommendations for *Workers with Previous Experience** with the Same Job

1st day	50% usual work duration
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2nd day	60% usual work duration
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3rd day	80% usual work duration
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4th day	100% usual work duration
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*Workers returning from an absence

- Managers should have a formal acclimatization plan for employees working in the heat. Starting new employees at full intensity is not safe.
- Adjustments to the acclimatization schedule may be needed depending on the worksite's situation and on individual factors.
- **Most workers should be able to safely handle a full workload after 4 days of gradual increase, even though they will usually not be fully acclimatized yet. Most people will continue to see beneficial improvements in heat tolerance for up to 2 weeks after exposure starts.**
- Sudden shifts in work intensity or sudden increases in environmental temperature can increase the risk for heat illness even for acclimatized workers.

Case Study: Hazards of Not Acclimatizing Workers

A 41-year-old construction worker was sawing boards in 93 °F heat. At 5 p.m., the worker collapsed in the parking lot. He was found by another employee. His body temperature was recorded at 108 °F when he was admitted to the hospital. He died the next day. At the time of the incident, the employee had been working for the company for one day. The company had no formal heat stress policy or acclimatization plan.

Lessons Learned

- Heat casualties often occur with new or less experienced employees.
- Deaths from heat stress often occur during the first few days on the job.
- Employers should have heat stress policies, and should implement acclimatization plans.



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